

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Seventh Semester

AUTOMOBILE ENGINEERING

AUE121: Alternative Fuel and Energy System

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. "New renewables" are
 - a) solar, wind, geothermal
 - b) wind, wood, alcohol
 - c) hydro, biomass
 - d) coal, natural gas
2. A major disadvantage to using wind to produce electricity is
 - a) the emissions it produces once in place
 - b) its energy efficiency compared to conventional power sources
 - c) that people can use a single mill or develop a large-scale wind farm
 - d) the initial startup cost
3. In some countries ethanol is used as a fuel for cars. The main disadvantage of this is
 - a) ethanol is flammable
 - b) burning ethanol instead of petrol increases pollution
 - c) large areas of land are needed to grow the crops used to produce the ethanol
 - d) fumes from ethanol will cause drivers to have accidents
4. The process for converting sugar into ethanol is
 - a) distillation
 - b) desalination
 - c) combustion
 - d) fermentation
5. One difficulty with the process of using hydrogen as a power source is that it
 - a) Less technological know how
 - b) is less efficient than fossil fuels
 - c) requires a fuel that is a nonrenewable resource
 - d) requires an energy investment to begin the process
6. Natural gas mainly contains

22. a) Discuss about the usage of alcohols in IC engines specific to their performance and emission parameters.

(OR)

b) (i) Describe some of the important properties of ethanol (7)

(ii) Discuss about emission and combustion characteristics of a C.I engine. (7)

23. a) Discuss the performance and emission characteristics of biogas in CI engines.

(OR)

b) (i) Describe some of the important properties of CNG. (7)

(ii) Enumerate some applications of natural gas. (7)

24. a) (i) Compare the Jetropa oil for the suitability in CI engine (7)

(ii) Explain the performance and emission characteristics of Jetropa oil in the DI diesel engine. (7)

(OR)

b) Discuss about the performance and emission characteristics of different blends of biodiesel with the help of neat graph.

25. a) With the aid of neat block diagram explain the principle of working of series and parallel type hybrid vehicle in detail.

(OR)

b) (i) What are the basic requirements of a battery charging system in an automobile. (7)

(ii) Explain the methods of preventing overcharging of batteries in an automobile. (7)
